

Pest Problems

Pine Wilt: Pine wilt is moving westward into communities with a large number of pines. It is a disease caused by a nematode which invades the wood of the pine and destroys the ability of the tree to take up water. A beetle called the pine sawyer moves the nematode from tree to tree. The Kansas Department of Agriculture, Kansas Forest Service, and Kansas State University Extension Service are working together with stakeholders such as nurserymen to prevent dissemination and establishment of this serious disease of pine.

The Pine Wilt Initiative of two years has paid off dividends with several outlying disease epicenters in central and western Kansas removed. A community action plan was developed and presented to several groups or stakeholders who live in the western half of the state in early 2008. Communities are now scouting and removing infected trees to limit the establishment and impact on local pine populations. The Kansas Forest Service is seeking financial support from the US Forest Service for mitigation efforts for future years. If they are successful in securing the grant, our plan is to address active pine wilt infestations on the leading edge in central Kansas with the goal of creating a buffer zone.

What are the hosts for pine wilt? Scotch, Austrian, and mugo pine. Most native pines have some resistance and white pine is generally spared from this disease. But in October of 2008, we had a report for the disease on white pine out of Johnson County.

What is the significance to the nursery industry here in Kansas? We ask the nursery industry to

follow strict sanitation measures regarding pine wilt in their nurseries to avoid dissemination of the pine wilt complex statewide. Pine wilt is a regulated disease under the Kansas Plant Pest Freedom Standards (K.A.R. 4-5-10). Kansas regulation specifies that plant material have less than 1 percent incidence of pine wilt. The presence of pine sawyer, the insect that transmits the disease, excludes all material from meeting pest freedom standards. Infested nursery stock moves the nematode and the pine sawyer both locally and long distances. An unseen problem develops when adult sawyer beetles begin to emerge and feed on pines in late May. Pines take 6 to 12 weeks to express symptoms of pine wilt after infection. *If trees are dug during this interim, both the sawyer beetle and nematode are moved in what appears to be a healthy tree.* It is therefore potentially unsafe in regards to pine wilt complex to move pines from infested plantings after late May through early December.



Figure 1. A first instar larva of the pine sawyer in a gallery of a pine wilt infested tree.

- Nurseries direct a control program to scouting and destroying infested trees. This will reduce the risks to both nurseries and the consumer from pine wilt. Nurseries with pine wilt can continue to dig and ship pines if they follow **strict sanitation** measures through the growing season. Burn, bury, or chip dead or dying trees.
- Nurserymen consider not growing and promoting Scotch pine and in many places Austrian pine because of the pressure from pine wilt. Native pines are less susceptible to the disease complex. Consider natives for planting whenever possible.
- Nurserymen in central and western Kansas verify that your sources of stock originate in a pine wilt free nursery.

Virus in bedding and perennial plants:

Viruses in any plant material under Kansas Plant Pest regulations are regulated non-quarantine pests and that stock is subject to disposal. Please check your sources before bringing in infected stock into your operation.

Hosta Virus X and Arabis mosaic were a problem in hosta in 2008. We had numerous reports but believe the overall incidence was down from 2007. The hosta, yellow splash, accounted for about 20 percent of the reports of Hosta Virus X and was occasionally infected with Arabis mosaic. We started using the Agdia strips in May for diagnosis for Hosta Virus X and Arabis mosaic enabling on site confirmation. We encourage growers to take advantage of Agdia products or other companies for disease diagnostics (<http://www.agdia.com>) to help prevent the movement of infected plant material.

Other disease reports included a couple of greenhouses with high incidences of Impatiens necrotic ringspot virus. The stock in one operation, with several houses, was completely disposed of. Other viral reports included papaya mosaic on purslane and portulaca and Nemesis ringspot virus on Nemesis and suspected on phlox.



Figure 2. Papaya mosaics of purslane, symptoms include twisted and stunted growth.

Japanese Beetle: Japanese Beetle populations continue to grow and spread in Kansas. Some of the existing populations increased in 2008 and migrated several miles from the existing core infestation.

The increase in numbers and distribution has led to the implementation of a new regulatory procedure for exporting nurseries and turf farms. **A Japanese Beetle Compliance Agreement** was developed and implemented for 2008 for some of the exporting nurseries that had Japanese beetle populations in their growing fields in 2007. The treatment procedure and protocol follows very closely to the **Japanese Beetle Harmonization Plan**. It is foreseen that for the 2009 growing season approximately 10-15 exporting nurseries and turf farms will be issued this compliance agreement.

The bio control program with the parasite (*Ovavesicula popilliae*) continued in 2008. The release sites were left undisturbed in 2008 with hopes that this would assist in the increase of the parasite population. Checks may be done in 2009 to see if the parasite is established.

Quarantined Plants

The Plant Pest and Commodities Certification Act give the Secretary of Agriculture the authority to quarantine plant pests. A quarantined plant cannot be sold, bartered, or moved. Currently the Department of Agriculture has four active permanent quarantines which are Grecian foxglove,

purple loosestrife, tamarisk spp. (saltcedar), and a federal noxious weed quarantine.

Grecian foxglove, *Digitalis lanata*, originally from the southeastern part of Europe and was imported to the United States as an ornamental. Grecian foxglove's invasive characteristics allowed it to escape cultivation and invade Kansas pastures, hay meadows, and timber. The plant produces Digitalis, a heart stimulant that could kill cattle and adversely affect humans if the plant is eaten or if bare skin is subject to prolonged exposure.

Purple loosestrife, *Lythrum salicaria*, is a perennial invasive weed that invades lakes, rivers, and wetlands. Purple loosestrife is established across the United States and it is also noxious in many states including Nebraska. It is characterized by having a square stem with purple flowers that have 5-6 petals per flower. Since it flowers throughout the summer, it can produce up to 2.7 million seeds per mature plant.

Tamarisk (Saltcedar), *Tamarix spp.*, currently displaced approximately 1.6 million acres of native vegetation in the western United States. Salt cedar is an invasive riparian shrub from Eurasia and was originally sold as an ornamental or planted for stream bank stabilization. It is a plant that is characterized by having a fast seedling growth rate allowing for quick establishment, profuse seed production with mature plants, increased soil salinity contributing to its invasive nature, and elevated water usage as compared to native species.

Federal Noxious Weed quarantine refers back to the list of noxious weeds declared by the federal government. The list is composed of 72 terrestrial and 19 aquatic species. Included are Japanese bloodgrass (cogongrass)-an escaped ornamental grass; giant salvinia-a floating aquatic fern species popular in the water garden trade; and hydrilla-a submerged aquatic plant that is often considered the worst aquatic weed in the United States.

Live Plant Certificates of Inspection

Our procedure for issuing Live Plant Certificates of Inspection was changed in 2008. We now issue the

certificates at the time of the inspection but with an effective date of October 1 of the current year through September 30 of the following year. With this system the effective dates and ending dates are consistent. The only exception is when a client who has not had a Live Plant Certificate of Inspection and needs one during the growing season; we will do the inspection and issue the certificate with a September 30 expiration date of the current year. Greenhouses will be inspected during their production season and issued the certificate good for a calendar year as we have done in the past.

Trapping Programs

These were national trapping surveys.

Emerald Ash Borer: 200 traps total, 100 set by the state and 100 set by APHIS from May-September. No EAB found. (for more information go to www.emeraldashborer.info)

Light Brown Apple Moth: 50 traps set from July-October. No LBAM found. (For more information go to www.aphis.usda.gov/plant_health/plant_pest_info/lba_moth/index.shtml.)

We would like to express our appreciation to the nurseries that let us put traps on their property. This type of work is of great importance in protecting Kansas. Early detection will improve the odds of eradication and containment success if the pest is found.

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